

1764
AN
ACCOUNT

OF THE

Preparation and Management

NECESSARY TO

INOCULATION.

By Mr. JAMES BURGES.

— *Sublato Jure nocendi.* HOR.

Æquè pauperibus prodest locupletibus æquè. HOR.

THE SECOND EDITION,

With LARGE ADDITIONS and IMPROVEMENTS.

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DAVID MIDDLETON, Esq.

SERJEANT-SURGEON

T O

HIS MAJESTY, &c. &c. &c.

S I R,

THE production of the following sheets is intirely owing to your incitement. These observations, which I had collected in many years practice, were altogether treasured up in my memory. These, previous to any intention of offering them to the publick, I

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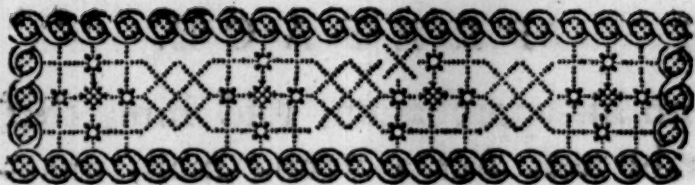
always

always took a particular pleasure in discussing at proper opportunities with you, always happy when I found my opinions coincide with yours, and confirmed by your judgment. You approved and encouraged me to put my thoughts in writing: your approbation incited my vanity. I wrote a treatise such as you see; such as you express'd satisfaction at after you had seen; at which I was so well pleased, that without further hesitation I sent my book to the printer, and boldly became an author, not greatly solicitous about the event: I spoke the truth, told what I had seen and known without disguise, with a good intent, and was animated with the flattering approbations

DEDICATION. v

bations of some of the most eminent among the profession, whom I had the honour of numbering among my friends; but as you had the chief hand in the guilt of my becoming an author; as the work has lived to a second edition, and is grown up into a book; I now venture to prefix your name to it. If you are ashamed, take shame to yourself. One thing I am sure I shall never be ashamed of, viz. declaring publicly how sincerely I value and esteem you.

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 the Doctor again, and desired his opi-
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 some guarantee, which when finished
 counted to be in his possession. Dr. Fuller
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 imagined he could understand mechanism
 being a mathematical man
 state of health by riding
 having recovered from a bad
 R. T. Fuller, Esq.
 with his hand in a wooden splint
 any person, as the
 P. R. E. F. A. C. E.



P R E F A C E.



R. FRANCIS FULLER, having recovered from a bad state of health by riding, being a mathematical man, imagined he could account mechanically for the power of exercise on the human body; which he endeavoured to do in his Treatise *de Medicina gymnastica*, which when finished he carried to Dr. Pellet, and desired him to peruse it. When he waited on the Doctor again, and desired his opinion of his book, the Doctor said it was very pretty. Mr. Fuller, pleased

with his approbation, told him, that as he was but a young man, unacquainted with practice, he should be exceedingly obliged to him, to furnish him with some histories, to illustrate and confirm his theory; which he did not in the least doubt, but that the Doctor's extensive practice would enable him to do. Dr. Pellet replied, That he had not really met with any that would exactly fit his purpose; but that the common method was, and he would find it his best way, to make his cases himself; that by this means he would be sure they would fit exactly, and not disappoint his reader. I am afraid there is too much truth in this assertion; a lively imagination will easily dispose a man to lay down hypotheses, and on their unstable foundations to raise fantastic structures, which delight and surprise both the architect, and those that

through inattention, or ignorance, are incapable of examining the fabric by the proper criterion of truth, assisted by experience, which, destroying the foundation, dissipates the incoherent superstructure into air.

How many books on the subject of physic have been published, of great learning and ingenuity, without any knowledge? How many volumes full of deep speculation, that have amused greatly, without conveying any instruction? What works have not so many learned professors published? what subject have they not exhausted? yet how little have they added to the improvement of their profession? and how little wiser have they made mankind? In short, how much have they wrote, and how little have they known?

One of the greatest names amongst those physical writers, who has been
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the lawgiver to the medical republic for half a century, owns himself ignorant of the use of blisters, and seems likewise not thoroughly instructed in the use of the bark.

Another in a list he gives us of emetics, omits the ipecacuanha, and in his detail of medicines that produce inflammation on the surface of the skin, forgets Cantharides. What should we say to an artist, who having harangued ever so mathematically and mechanically about his work, should set about it without his most necessary tools, or knowledge of their use?

What can we think of those works, which carry so many marks of labour in their production and composition, yet want so many laborious books of commentaries to explain and illustrate them, and which again in their turn call so evidently for a skilful abbe-
viator

viator to contract and abridge them to the capacity or attention of a common reader? Fidelity and perspicuity ought to be the aim of every writer on the subject of medicine. One of these qualities is not in every man's power; but surely fidelity is. What opinion then can we entertain of those writers, to whose ingenious labours of late the medical world is so much beholden for their wonderful discoveries of the uses of the *cicuta*, *solanum*, *colchicum*, &c.? I wish for the good of mankind they had spoken truth. I will charitably suppose they thought they did, if the vanity of being inventors did not dazzle their eyes. Our physical people were so pleased with these surprising improvements and additions to the *Materia Medica*, related so confidently, and so seriously attested; that, laying aside all prejudice in favour of the ancients, and their account of the determined

termined properties of those venomous plants, they, with implicit faith, admitted all these modern assertions as true, not suspecting such great and grave writers could so formally impose on their fraternity; till at length the event convinced them of the delusion, which some even at last parted with, but with the utmost regret; and could hardly be brought to allow they had been imposed on. It would be right if those who undertake to teach the exercise of the practice of medicine, would inform their pupils the just boundaries of their art, like faithful navigators marking out the true limits of their discoveries; but I do not know by what fatality it is many persons are unwilling to be thought not to know what there can be no shame in being ignorant of. Here I cannot help doing justice to the merit of a gentleman, who now teaches

teaches anatomy amongst us, with an accuracy and perspicuity scarce ever equalled in this or any age or country; ever distinguishing between certainty and speculation; never obtruding probabilities (which he is perfectly capable of conceiving) instead of established truth.

The goodness of Providence certainly designed that we should know so much of our own structure as might conduce to the preservation of our fabric. This knowledge we have obtained but slowly, and what hath been gained has been procured rather by industry than subtilty of human ingenuity. The knowledge of the solids, and course of the fluids through their containing vessels, their several properties and actions, are by the researches of succeeding ages so well ascertained, that we, from the light afforded

fording us by discoveries faithfully delivered to us, and which abide the test of time, are rightly enabled to investigate sufficiently not only the situation and cause of diseases, but may be well informed, by due attention and application, in the most probable means of attempting the cure of them, and may with a safe conscience undertake the practice of physic. So far as our sight can inform us, we tread on sure ground; as far as rational deduction from known facts can lead us, we may proceed safely; but when we leave that safe road, and trust ourselves to imagination, all becomes confused: we please ourselves with airy phantoms of our own raising, which play a little while before our eyes, then dissolve in air, and vanish for ever. We please ourselves, and divert others with our reveries; we establish and reason upon hypothesis and speculation:

P R E F A C E.

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culation: but whilst the medical world is amused, and their attention engaged in controversy, useful enquiries are laid aside, and science stands still.

In the mean time reasoning justified by facts, and truths established by experience, have ever held out their torches to mankind with sufficient light to assist and relieve those miseries human nature is exposed to: bones have been set; wounds, contusions and ulcers, have been healed. Commerce and luxury have indeed enlarged the circle of physic, by encreasing the number of maladies; yet the well directed industry of many excellent men, following the example and treading in the steps of their predecessors, have by diligent attention and fidelity in transmitting to posterity their observations, by the exact description of diseases and their symptoms, the

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faithful

faithful relation of the events of the several methods used for the relief of them, the causes of the good or ill success of those methods, as far as they could be deduced from evident circumstances ; have, I say, set our present practitioners upon a level with their physical predecessors in a knowledge of their art, though greatly enlarged by a considerable accession of subjects in the exercise of it. The description of diseases, the diet and management of the sick, as delivered down to us progressively by the ancients, were of excellent use in laying a foundation for our knowledge, which will ever be best perused, and a proper superstructure raised, by drawing our materials from the same sources of nature, experience, and observations founded on it. Cases and descriptions of diseases, and their events, the investigation of their causes by dissection,

P R E F A C E.

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tion, are to medicine what experiments are to philosophy. They who doubt this need only to compare Galen with Aretæus and Cœlius Aurelianus, Sydenham with his mathematical and chymical cotemporaries, and Morgagni with the modern systematical writers, and he will easily perceive who are the best guides to direct our steps in the right paths of knowledge.

In some, the want of experience, but in other very ingenious men, the want of candor is more to be lamented; and I am afraid, that pleased with the ingenuity of their own imaginations, and unwilling to part with the pleasing delusions; they have rather followed Dr. Pellet's rule, and made cases to fit their theory, than endeavoured to establish a just system of practice, drawn from (the true fountain of knowledge,) experience: in

some, the fondness for the marvellous has so far prevailed, that they have indulged themselves in relating what is strange, without regarding enough what is true. There is likewise reason to think, that it oftentimes happens, that those who have been employed in teaching medicine, have advanced falsties for the sake of concealing their absurdities, and for fear of appearing to their pupils (who are accustomed to revere their omniscience) ignorant in those things, in which it is no shame to be so.

When a man of solid understanding has been long conversant in practice, the prejudices of education wear off, the respect for great names diminishes, his judgment takes place of his imagination, and experience puts an end to all theoretical reveries. In this situation if he applies himself to
write,

write, how dry will the language of truth appear? The simplicity of a few wise instructions to encourage the timid; some cautions to restrain the bold; a candid relation of what has appeared before his eyes, or come within his knowledge; and a faithful account of what observations he has made, as well in diseases, as in the methods of cure, related with clearness and exactness, will be the produce of his labours, whilst truth and utility will be the only objects he has in view. Such have been the productions of a Sydenham, and the labours of a Mead, which they have consigned to the benefit of futurity, and which will always remain monuments of their judgment and integrity; while the voluminous works of many of their cotemporaries will probably enfold spices, their only security from the worms.

It were greatly to be wished, that the writers on medicine had, instead of telling us what they thought, only informed us of what they knew ; a few matters of fact being of much greater real use to the art of medicine, than the most ingenious hypothesis supported with the greatest learning and subtilty.

The pursuit of this method hath transmitted the names of the ancients down to posterity ; we revere their industry and fidelity, we honour their care of recording and distinguishing distempers, by a faithful relation of what they saw and observed.

Their sects, their theories, and other speculations (however they might amuse succeeding ages) have by degrees been quite lost and forgotten for ever, serving now only to divert the curious

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P R E F A C E. xxi

in their closets ; so that, at present, their medical physiology and philosophy are quite deprived of all that weight and authority by which they governed the academies of all Europe. The opinions of Galen and Avicenna (being become as obsolete and neglected as if their authors had never existed) are now entirely absorbed in the gulph of oblivion, never to emerge again ; whilst the accurate and judicious observations, the careful reports of matter of fact, and faithful records of what they saw, and the perspicuous descriptions of distempers, will transmit down to posterity the names of Hippocrates, Celsus, Aretæus, Cælius Aurelianus, and even Galen, as far as his works are included in our circumscription of utility.

Those men of practice that have transmitted their observations to posterity,

terity, have alone enriched their profession; a collection of such observations, founded on experience, and delivered with exactness and honesty, is a real treasury of art, into which it would be a real service to the public, if those that are qualified would throw their mite. This is at present my ambition, for which purpose I have chosen a subject, *nullius ante trita manu*, on which I shall endeavour to communicate in the plainest terms what has come under my inspection relative thereto; and at the same time declare what methods I have found successful; and where I pretend to reason, shall only make my deductions from matter of fact, and derive my physiology from the most apparent phænomena, and the known laws of the animal œconomy.

While

P R E F A C E. xxiii

While the following sheets were preparing for the press, as several circumstances I had advanced seemed to contradict the received mode of practice, viz. the method of preparation, the usefulness of opening the belly by solutive medicines given by the mouth at the access of the distemper, the impropriety and inconvenience of emetics at the same time of the disease, the essential necessity of continuing the patient in bed till the suppuration was compleat; I submitted my opinions severally to the most eminent gentlemen of the faculty who honoured me with their friendship, determined to sacrifice every private opinion and prejudice to the deference I paid their judgment I so highly honoured. When I mentioned to Sir Edward Hulse what I advanced on the subject of vomits, he so far approved it that he declared with some warmth

it had always been his private opinion, and that he would hold up both his hands in justification of the practice. Dr. Mead also approved of what I had written on the subject both of vomits and purging. These names, so universally known in the medical world, I am proud to mention, as I might those of several others, all of eminent merit and judgment, whom I consulted, and who honoured me with their approbation, and encouraged me in the most flattering manner to deliver my sentiments to the public. I have since been by experience confirmed in the justness of those sentiments, and have had the pleasure of seeing the practice, here proposed, almost universally followed; nor do I remember to have seen any objection started to the contents of these sheets, except some trifling observations published in the Critical Review, which really
never

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never required or deserved an answer.

The practice of inoculating the small-pox has found employment for many writers. Superstitious and weak minds were alarmed at the first introduction of it, whilst those that were influenced against the novelty, opposed it with all the arguments their wit and prejudices could furnish. On the other side, those that patronized the practice, to establish its credit, had recourse to calculation, by comparing the numbers of those that died in the natural way, with that of the persons that miscarried under the inoculation, by demonstrating how small the chance was of escaping the distemper, and how little the hazard incurred from this new method of contracting it. This way of managing the dispute carried such conviction with it, as soon

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confounded

confounded their opposers, and established the practice.

Whilst practitioners were thus engaged in proving the usefulness, and setting forth the advantages of the new method, there is no one that I know of, who has given an account of its progress through the various stages of the distemper, of the different consequences from the particular manners of treatment of it, or endeavoured from his own observation or the general practice to form such a system of management of the inoculated persons, as would be conducive to their security; or if it has been done, it is so cursorily, that no method of practice can be established from any account that has yet been published.

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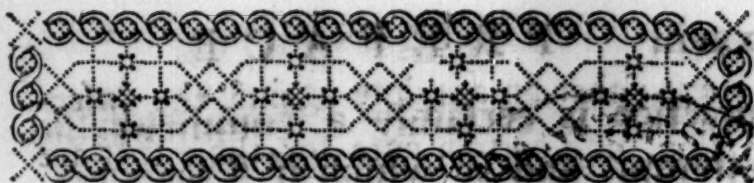
P R E F A C E. xxvii

This is the end and intention of the following sheets, in which if I have advanced any thing that can be useful to the public, and add to the safety of the practice of inoculation, by pointing out those neglects or mistakes which have not hitherto been sufficiently attended to, I shall think myself happy. If I am mistaken in any thing, as I have no design to deceive, I shall be glad to see my errors corrected. All I ever intended is to be useful.

The inoculation of the small-pox has been the occasion of the greatest happiness both to the public and individuals, as it adds to the strength of the nation by preserving numbers of the people, and is the foundation of security and quiet to the minds of all those who have overcome the danger, and are past the fears of the distemper. To add to the security of this practice

practice is certainly a commendable attempt, and in which if I have succeeded, it is well; but however I may have otherwise fallen short of my purpose, I shall enjoy the satisfaction of having well intended.





CHAP. I.

Of the Origin of Inoculation.

THE irruption of the Saracens,
T amongst the many evils it
spread in the world, introduced
the small-pox, a distemper till that
fatal period entirely unknown, but which
in its progress has made greater havock
amongst mankind, than even their religion,
and the fury with which it inspired
their arms.

The art of medicine during so many
centuries has not been able to put a stop
to the rage of the distemper, by finding

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out either an antidote against the infection, or a certain cure for those that are attacked by it. Providence has indeed kindly ordained, that our frame, after having once supported the dreadful shock, should remain for ever secure from its fury.

But this security is obtained with the greatest danger, the infection seizing all ages, and sexes, under all the various circumstances the differing situations of life expose mankind to; such as distempered habits, child-bearing women, &c. and those affected with the greatest poverty and distress; and what makes it still more dreadful is, that the poison lies concealed in the blood, while perhaps the unhappy subject, ignorant of the approaching calamity, is urging the latent venom into action, and rendering his constitution unequal to the attack.

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Mankind for several ages continued in this unhappy state, under the continual dread of the distemper, without any possibility of preventing its attack or alleviating its violence, till it pleased the divine goodness by the means of the most barbarous and illiterate nation in the world, to suggest to the rest of mankind, the method of lessening the hazard, I might say of preventing the danger of the small-pox, by inoculating the distemper at the age and season when the body is in the best condition to receive and encounter the disease.

I cannot help thinking that the small-pox was derived originally from the nations bordering on the Caspian sea, as it is first taken notice of about the time the Turcomans, and other neighbouring nations, drawn by the distractions of the Eastern empire, first made their appear-

ance in Asia, which was about the time the Saracens began to grow formidable; with whom they united; and whoever considers the slow progress of this infection, will find it of a very different nature from the rapid venom of those pestilential diseases, that owe their rise to a Southern climate, and a scorching sun.

But, from what quarter soever the disease derives its origin, it is from those parts we have received the practice of inoculation, which has proved almost an antidote to the malignity of its poison.

The Circassians, who lived between the Euxine and Caspian seas, have for many ages carried on the infamous traffick of selling their daughters to the Turks and Persians for their seraglios; and as they were remarkable for their beauty, the parents derived great profit from

from their unnatural trade. But the small-pox often carrying off their children, or, what they thought equally prejudicial, spoiling their faces, and rendering them unfit for sale, to avoid these disappointments, as they observed the age of infancy to escape best from the distemper; and that even when they suffered most severely at that age, time wore off the marks of the disease; they endeavoured to communicate it to their children at that period of life, and meeting with success have continued the practice down to this day: the other Christian nations in the East have since followed their example, and adopted this method of securing themselves and their children from the violence of the infection.

From them the Lady Mary Wortley Montague having informed herself of its success, whilst she continued in Tur-

key with Mr. Montague, embassador at the Porte, brought the practice over to England, and recommended the use of it to her own countrymen. On this account, this lady is certainly to be mentioned with honour; for if the Romans judged him worthy of a civic crown, who preserved the life of a single citizen, how much more doth she merit, who has been instrumental in conferring health and life to thousands, by bringing into her own country a practice, of which ages to come will enjoy the benefit? And it has pleased God Almighty to bless the practice with such success, that I think we cannot without unthankfulness condemn it, as it has contributed so much to the public as well as private felicity, and as to it we owe the security of the Royal progeny. It is to this practice so many illustrious families who wisely copied their monarch's example, are beholden for the
pleasing

pleasing prospect of the continuance of their names and houses. I will not tire my reader with recounting the happy consequences, which have and must necessarily attend this practice, which if properly followed will demonstrably put an end to the distemper itself.

I have lately had transmitted to me from abroad, a tract published by a young Physician at Lyons, who would insinuate that we in England have little reason to rejoice at the propagation of this practice of Inoculation, as since its introduction the number of those who have died of the small-pox in the natural way is much encreased, however happily those who have been inoculated may have escaped: for this he appeals to the Bills of Mortality. He likewise pretends to doubt of the success of the practice in general, from the unhappy event of two hundred and thir-

teen inoculated persons in the city of Lyons, where he resided. In answer to the first assertion, I believe the Gentleman is ignorant that within the space of time mentioned from which he draws his calculation, there have been some thousands of spacious houses, two bridges raised unequalled by any modern work we know of, besides a third repaired; a Lord Mayor's or Town-house of enormous bigness raised in the middle of the city; which must have drawn a great conflux of people, such as labourers, bricklayers, masons, carpenters, and other artificers, to raise and adorn these great undertakings. Now as these consist of people in the prime of life, careless, and too often intemperate, it is no wonder the numbers of those that died within that time of the small pox has somewhat encreased. But a very ingenious Gentleman * has sufficiently demonstrated the fallacy and

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* Dr. Relhan.

weakness of the foundation he builds upon, in a particular treatise, which altogether supercedes the necessity of my expatiating on this subject. His conclusions from the ill success of the practice at Lyons cannot affect us in England, as daily experience teaches us the contrary, if what he asserts is truth ; therefore I am satisfied all the accidents he mentions must have been owing to some mismanagement either before or during the time they were confined by the disease. I should have been glad if the Doctor had related the particulars of the histories of some of these unhappy patients, with an account of their treatment during the time they were confined under the distemper. Perhaps some more experienced practitioner may point out what accidents error of judgment, or inexperience in the management of that particular species of disease, may have occasioned : we know

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that several circumstances happened that proved very disagreeable in the infancy of the practice in England, which are now no more heard of; reason and experience having pointed out the causes and remedies of those inconveniencies and accidents, which at that time did not prevent the practice extending through our colonies in the West-Indies and North-America, where they have the greatest reason to be satisfied with the preservation of infinite numbers as well of free-men as slaves, to the great advantage of all those colonies, where it still continues to be steadily pursued, so well are they convinced of its good effects.

I do here affirm, that of the hundreds whom I have attended, I have not yet lost one; nor do I recollect one hectic, cachectic, or strumous person become such from either the immediate or remote

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consequences of Inoculation, but know several that after Inoculation have enjoyed the health they wanted before, as I shall illustrate in its proper place.

C H A P. II.

Objections to the practice considered.

THERE are two objections to this practice ; the first is started on a religious principle, viz. that it is a temptation of Providence to bring a distemper on ourselves, or innocent persons, and exposing them to an unnecessary danger, which possibly they might never incur ; this has been sufficiently and properly answered by an excellent and learned prelate already. I shall only add, that no man deserves blame for running an inconsiderable present hazard, to secure himself from a future probable evil, or, what is equivalent, the continual fear of
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it; and I believe we may act with the same submission to the Divine Will, and implore God's blessing on our attempt in this as well as any other instance, where we act to the best of our judgment with a good intention.

The other objection is, that with the matter of the small-pox we may insinuate other distempers. I know of no instance in so many years as this practice has subsisted, where such accident has happened; therefore, I think it may be presumed no such thing can happen, but that the matter of the small-pox is a poison *sui generis*, and can admit of no other mixture. I know of one instance, where the matter was taken ignorantly by the surgeon from a young woman, who coming up to St. Thomas's Hospital to be salivated for the venereal distemper, fell ill of the small-pox. Three patients were inoculated
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from this matter, and had the small-pox in the most favourable manner ; nothing particular happened about the wounds. They all grew up healthy ; two of them are now alive, the third died of a violent fever at sea many years ago ; and indeed I have not even heard in almost forty years time of any cutaneous, habitual, or hereditary disease of any kind communicated with the small-pox, or supposed to have been derived from it, or happened in consequence of it, even in one instance.

C H A P. III.

The advantages of Inoculation considered.

THE great danger that arises from the small-pox, is in part owing to the accidental circumstances of the body that receives the infection, and in part to our ignorance of the approaching danger. How many are seized when the blood is heated

heated with exercise or debauchery, when the habit is weakened with fatigues, or the spirits affected with the passions of the mind; when the secretions are interrupted, and the pores obstructed by scorbutic, scrophulous, or other diseases? All these accidents add fuel to the flame, and heighten the virulence of the infection.

Yet could we possibly know when the infectious poison first insinuates itself into the habit, we should be able in many instances, by a proper management, to moderate the violence of its efforts before it begins to exert its effects.

But the misfortune is, that the infected person is for a week at least so insensible of his danger, that during that period, he is generally doing every thing that can increase it, and add force to his distemper;

per ; which he does not discover till sinking under its malignity.

Experience has taught us, that after the insertion of the matter, the infectious particles continue to mix imperceptibly with the mass of the blood, till being impelled in large quantities into the minute vessels of the membranes, and not finding a free passage through those narrow channels, they irritate their nervous fibres, and produce those spasms that occasion violent pains, vomiting and deliriums in adults, and convulsions in infants, until nature, being assisted by the fever, pushes off the obstructing matter upon the surface ; where part finding a free passage escapes through the pores of the skin ; the remainder obstructs, inflames, and breaking the texture of its vessels, forms those abscesses, which are the pustules of the small-pox.

If during this progress of the infection, the outward temper of the skin is moderate, the belly is gently open, or kept so by proper assistance, and the urine in due quantity; of a lemon colour about the time of the eruption; the pustules will be few in number.

But if the skin is hot and dry, the belly costive, and the urine in small quantity, and of a high colour, the number of pustules will be considerable, as well as the hazard of the patient's well doing, the danger of the distemper being generally determined by the number of the pustules.

From the preceding account, which is merely of matter of fact, we may make the following inferences: First, That it is necessary that the body should be kept in such a proper temperament, that the
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grosser parts of the infectious matter may be carried off by the more apparent secretions, being separated with the bile into the bowels, or washed off with the urine through the kidneys; and, secondly, that we should take care by a proper management of diet, air, rest, &c. to keep the vessels in such a state, as is necessary to permit the morbid particles an easy passage through their channels, and the skin so perspirable as to yield them a free exit through its pores.

How far it is in our power to assist nature, in attaining these ends, I shall endeavour to explain, and to likewise shew that inoculation enables us to obviate most of those accidental circumstances that add to the danger of the small-pox itself; as in the first place, it puts it in our power to determine the season of the year, the age of the patient, and to be

sure that the constitution is properly disposed to receive the infection; it likewise gives us time to remove or correct those habitual, or accidental disorders, that might render the event of the distemper precarious.

C H A P. IV.

The necessity of a proper preparation considered.

AS the small-pox is a distemper of the skin, on the surface of which it makes its final discharge, and by that discharge perfects its crisis; I have already observed, that when the pores are open, and perspirable, great part of the matter flies off through those out-lets; but when the skin is so obstructed, that the matter cannot find a passage through its pores, and nature wants force to bring on a proper suppuration, the infectious

fectious particles being resorbed by the blood, occasion those obstructions in the smaller vessels, that generally end in a mortification.

These considerations evidently shew the advantage of keeping the skin in a perspirable state, and avoiding as much as possible all those things that either clog the pores, or weaken the force of the vessels, necessary to keep up the secretion through the skin; in the natural small pox these precautions are impracticable, as the appearance of the distemper is the first notice of the infection; in the inoculation, our previous knowledge enables us to arm against the approaching danger, and prepare for its attack; and no man surely without being guilty of the greatest rashness or folly can neglect making such preparation, as is by this means so happily in his power, and

taking all the precautions that reason and experience suggest to be necessary for the safety of his patient; such as chusing the time when the body is in a proper state, or endeavouring to bring it into such a state, by keeping the secretions in a due regularity, to enable the habit to support and throw off the violence of the poison, that the vessels may give it a free passage through their channels, till its final exclusion on the skin. And further to improve our advantage, by making choice of the time of the year, when the body is naturally in the best condition, and when the constitution of the season is most favourable for the insertion of the distemper.

But should particular circumstances determine any one to undergo the operation, or any accidental motive of convenience determine a parent to run the hazard

hazard for their children, or any others for children who are committed to their trust, during those seemingly less eligible times of the year ; it will require the utmost caution of the physician or others, to whose care they are entrusted, to attend to the exercise, confinement, and diet, and every accident that may result from the intemperance of the season, with the utmost care, and to endeavour by proper regimen to obviate the several inconveniences as they arise through the successive stages of the distemper, and if possible to make even the management of the circumstances of the disease subservient to remove the faults of the habit.

C H A P. V.

Observations on the methods of preparation.

THERE have been two mistakes equally dangerous, relating to the preparation necessary for the inoculation of the small-pox.

The first is from the too great caution of some practitioners, who observing that the strongest and most sanguine constitutions suffered most severely from the small-pox, endeavoured to remove their patients as much as they could from that state, which they had experienced to prove so dangerous: thinking they could hardly reduce them enough, to venture on trusting them to the distemper, never considering that by weakening the habit too much, they robbed

nature

nature of the strength that was necessary to clear the constitution of the infectious matter, and to produce the proper crisis of the disease ; the consequence of which has been either a severer degree of the small-pox, or else some chronical disorder ; when the matter not being properly discharged on the skin, has returned back on the habit, and lodged in the cellular membrane, or stopped in the vascular folds of the glands, where it has produced invincible obstructions.

On the other hand, some have represented all preparation as idle, formal, and unnecessary, probably to enhance the merit of the practice ; but this is rather more absurd than the other, as it is throwing away those advantages, that the practice is supposed to procure, by giving us such previous notice of the access of the distemper. This is indeed

casting away our shield at the approach of the enemy : the hazard of the approaching fever will certainly be less, if the body is in a cool and temperate habit, the bowels unloaded, and the skin in a perspirable state ; those that affect to explode the necessity of preparation, must be either grossly ignorant, or obstinate, to deny this ; and such it is not worth while to confute.

In very lax habits, such as children, and delicate young women, the hazard is less, as such constitutions are in some degree in a natural state of preparation ; but in most others the want of a proper precaution is generally of bad consequence, as I have been convinced by repeated experience from the frequent inflammations, such as ophthalmies, erysipela's, rashes and abscesses, that have been the manifest consequence of such neglect ;

neglect; but which those that have precipitated the operation have never considered, while by lessening the ceremony of the course, they have persuaded greater numbers to submit to it, and if they could but bring their patients to a state of taking purging physic, never failing to shuffle off all future accidents on other causes, than their own injudicious and improper management.

I shall illustrate these assertions by two cases, that have fallen under my care, that serve to point out the consequences of these different errors, in the treatment of those that are to be inoculated.

HISTORY I.

A Young gentleman about sixteen, in perfect health, having determined to be inoculated, as his family had suffered severely by the small-pox, resolved

resolved to be in what he thought a proper state to elude the danger, for which purpose he reduced his way of living some months before hand; and once or twice a week purged himself with salts, in the country where he lived. When he came to town he appeared to be in health, though somewhat reduced, so that there being no apparent reason against the operation, he was inoculated: till the eruption, he was treated with the usual caution, as to diet, &c. he seemed low at intervals, but as this was judged to be the consequence of his fears, it was not so much attended to, till the distemper came on with the usual symptoms of head-ach, vomiting, &c. beside a great anxiety about the precordia: the pustules at the proper time appeared, but thick and coherent; and after their appearance the anxiety and dejection continued; the pulse was quick, but low

and fluttering, the pustules advanced but slowly, and the matter formed in them very disagreeably ; but at last opiates, joined with proper cordials, lulling his fears, and giving force to his blood, brought on the happy crisis on the 13th day, the matter flowing freely into the pustules, which it formed into large bags ; besides this he had several boils, which were carried off by bleeding and purging, since which he has enjoyed a perfect state of health.

HISTORY II.

A Youth of a sanguine constitution, of about eighteen, who laboured chiefly in the open air, having an offer of being inoculated, resolved to accept it ; his opportunities of preparation were few, and those not much improved, he keeping to his work till a very few days before the operation ; after it was performed

formed he was blooded, and managed with all proper caution; just before and about the time of the eruption, his nose bled freely, and continued to do so during three or four days. On the sixth day from the eruption, his face swelled, the pustules of the small-pox, which had all along appeared florid, distinct, and were of a very large size, on the seventh day were full of very good matter; but on the hands and feet, which then puffed up considerably, they appeared whitish and flat, and the surface of the skin round them, which was swollen and tight, had an intense red look inclining to purple; at this time he complained of faintness and giddiness in his head, his pulse was low and labouring, on which I ordered him to be blooded, which gave him immediate relief; and his nose very soon after bursting out a bleeding, and discharging a large quantity, the disten-

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tion of the hands and feet subsided immediately, the pock on them filled with laudable matter, the pustules on the body and limbs suppurating regularly, the young man recovered perfectly without any further accident.

In the foregoing cases I have only mentioned so much of each of them as relates to my present subject, and as they shew the effects of too much or too little caution in preparing the body for the operation; and shall proceed to the method of preparation, and the considerations necessary to it.

C H A P. VI.

Considerations relative to the preparation.

FROM what has been said it will appear, that by preparation is not merely understood keeping a patient low,

or giving him physick ; but taking care that the whole frame is in a proper state for receiving and getting rid of the distemper ; that it is neither too low to support the attack of the infection, or so loaded and overcharged as to obstruct the expulsion of it, or so heated as to conspire with the malady in raising the flame to too great a height. There are likewise three other points necessary to be attended to, which require the regard of the person who has the direction of those that are to be inoculated, *viz.* the choice of the proper age, the best season of the year, and the constitution of body that is rightly qualified to receive the infection. What these are I shall endeavour to explain.

Of the proper age.

In infancy (by which I mean the first seven years of life,) the habit is laxer,

as the vessels and other parts that constitute the human fabric are in an extensible state; besides, as the nourishment peculiar to that state is more simple, and easier digested, the exercises are constant and moderate, the passions of the mind trifling, the temperament of the body carefully attended to, and seldom unequally exposed to heat or cold; the secretions are more regularly performed, and the viscera not so liable to be obstructed, the force of the heart is vigorous, and the arteries elastic; therefore the habit (at this age) is naturally better qualified both to receive and expel the infection.

As the years advance, these advantages lessen; the body acquires a firmer texture, as the diet grows stronger, the exercises more violent and irregular, the passions more impetuous; and as the
external

external circumstances of heat and cold are less attended to, the secretions are more liable to be interrupted. As more or fewer of these circumstances concur, the infection will find greater or less obstruction in its course of separation and exclusion from the habit.

I shall not say any thing of old age, as I believe it is not likely that persons declining to the verge of life should think it worth while hazarding themselves to get rid of their apprehensions. I am sure, I shall never be the person that advises it.

Of the seasons of the year.

Excessive heat or cold are equally pernicious in the small-pox. As heat, by rarefying the blood and dissipating the moisture, and inflaming the habit to too great a degree, renders the separation of
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the variolous matter more difficult; so cold, by obstructing the pores, and constringing the vessels, brings such an overcharge on them, that they become unable to get rid of the load. Therefore, except in certain circumstances, such as anticipating the infection that approaches us so near that it appears almost impossible to escape it; or, when the season is remarkably gentle and favourable to the distemper; or, when the sort of small-pox is universally mild; inoculation should never be performed in the middle of winter or summer.

Of the other seasons, the spring is preferable to autumn, for this reason though there were no other; that whatever accidents happen, the general mildness and gentle warmth of the approaching summer, the advantages of country air and proper exercise, will all contri-

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bute their kindly powerful assistance to carry off the remains of the distemper, if we have occasion to call in their help.

Of the accidental circumstances of the constitution.

Besides old age, heat and cold, there are several circumstances in the person, or constitution to be considered. Though childhood is the properest age, yet even that age at some times is in a situation when it would be wrong to venture on the operation. When childrens teeth begin to push forward in the gums, a flux of humours falls on the salival glands, which discharges itself freely from the mouth by dribbling; but if these glands are obstructed, a purging often succeeds, and the humours are carried off by the intestines; both these discharges are natural, that is, such as nature makes use of successfully to facilitate the breeding

of the teeth, and prevent the consequences of the inflammation the sharp points of the tooth occasion in forcing its way through the membranous fibres that surround and cover it. But in case neither of these discharges happen, the child grows uneasy and peevish, tampering his lips, grating his gums together, and forcing up his hands with violence to his mouth, which feels hot to the touch: He is likewise at times affected with various feverish symptoms, starts, and is disturbed in his sleep. In this situation though I have known some venture, yet as the child is then liable to convulsions, and in danger of a fever, that will continue its effects after the symptoms of the small-pox disappear, the accidents of which will be confounded with those of the inoculated disease, surely no prudent man would hazard either the safety of

his patient, or his own character, (which must be always in some degree dependent on his success,) by adding the greater danger of the toothing fever to the otherwise trifling one of inoculation. In this case it is always better to wait either till the inflamed gums subside, or the teeth have made their way through them, either by their own force, or the assistance of the knife.

But if, after the inoculation, the gums should grow uneasy and spread much, whilst proper means are used to subdue the fever, or relieve whatever other consequences proceed from the impulse of the teeth, it will be right to divide the gums, not scratching them superficially with a lancet, but cutting down to the tooth with a strong hand and proper instrument.

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I have said so much on this subject, as I have observed it less attended to than it ought to be.

Hard bellies, from whatever cause they proceed, as also cutaneous eruptions render a child an improper subject for inoculation, till those disorders are removed.

The chief objections to inoculating grown persons arise from particular accidents. Women with child ought not on any account to be inoculated, as the distemper most likely will prove fatal both to the mother and the child. Hectic and scrophulous persons, and those that are troubled with obstinate eruptions on the skin, are improper objects to expose to the malignity of the variolous venom.

Yet, as I before observed, it is sometimes necessary to inoculate even those

whose constitutions are not altogether what we would desire; but from the determined resolution of the parents, or the persons themselves, the terror of the surrounding distemper, or any other cause, as many justifiable and reasonable ones will occur in long practice, where the circumstances may be such as lay a man under a necessity of assisting those that call on him, and it is possible that though the season of the year, the age, or habit, &c. of the patient may be favourable in many things, yet every other circumstance does not equally correspond to his wish; it will be then necessary to consider by what means those accidents we chiefly apprehend may be properly guarded against. I have in the foregoing pages hinted several circumstances that require particular precautions, I shall now confine myself to those I think highly necessary

necessary in strongly scorbutic or scrophulous habits, than which I know of none where the skill of the physician has so much scope to display itself; and as facts give stronger illustration than mere precept or argument, I shall endeavour to clear up what was been advanced by relating the following cases, that precept and fact may mutually justify and support each other.

I was recommended by a friend to attend three children of a gentleman, who brought them out of the country to be inoculated; the father told me he committed them intirely to my care and direction: they were two young gentlemen and a sister, the second in age, which, to the best of my remembrance, was between ten and thirteen, near equidistant from each other. On examination I found the surface of their skins remarkably dry and hard, the inside of their

hands callous like those who had been used to hard labour; though I could not find, on the closest enquiry, that their diversions had been more laborious, or that they had been engaged in any amusement or exercise different from what those of their own age and condition usually employed themselves in. The tonsils, jugular and cervical glands of the eldest were larger and harder than in their natural state they ought to have been: the second was well grown; she had a weakness, a complaint not very common at her age: the youngest, though rather freer from these glandular obstructive appearances, had a thickness in his upper lip, and some other suspicious marks of the same disposition. I desired a week to consider the several circumstances of my patients constitutions, and at the same time to consider them with the gentleman pitched upon to perform the operation, (whose candour and judgment I held

held in the highest esteem) whether it would be proper to inoculate them under those disadvantageous circumstances : but finding the indulgent parents considered this delay as a reprieve that gave them an opportunity of gratifying their children with those amusements this town so liberally furnishes to entertain young folks of their age ; therefore, apprehending it very likely they might be attacked by the distemper, to which they would be much exposed, and to greater disadvantage than it could possibly be if brought on by the Inoculation, the operation was resolved on, the parents submitting in the most reasonable manner, and promising to pay all due regard to the directions prescribed. The distemper appeared at the usual time, and though the number of pustules was considerable, the small-pox went through its usual periods, without any remarkable interruption.

tion. The eldest, on the subsiding of the face, complained of a difficulty in swallowing; but no soreness appeared, or was felt within the throat, though on the outside all the cervical and jugular glands were hardened and enlarged sufficiently to render deglutition very disagreeable. He had a slight fever, so that I found it necessary to have him blooded, and took care to have his bowels emptied, and kept him cool with nitrous antiphlogistic medicines. I likewise kept him in bed till the thirteenth day, when the stricture of the glands being abated, he was taken out of bed, and after a few doses of gentle purging physick, directed a course of alterative medicines, which he continued some time; after which being recovered he went down to the sea-shore, where by the use of sea-water he acquired a perfect state of health. The cases of the other two were nearly parallel, differing indeed

indeed in some few circumstances, the event equally favourable to all. I saw some years after all the persons that were the subject of the preceding narrative arrived to their full stature, and that by no means the smallest, of exact and perfect proportion, and every apparent mark of health and vigour. I have not given a detail of the medical treatment of these patients, as I do not in the least doubt but that every practitioner's experience and judgment will supply him with a stock of materials sufficient to answer his purpose; nor do I set myself up as a teacher of physick.

Even the most healthy constitution is not to be inconsiderately hurried into inoculation. Any one that considers the nature of the human frame may know, that a man may be in a perfect state of health,

health, yet the least unnatural force on his constitution may raise terrible commotions. It was the observation of Hippocrates long ago, that the highest health was a state of the greatest danger. All the functions of life may go on with the greatest vigour, the heart and arteries act with strong and regular force, and the fluids circulate freely, when the smallest interruption or preternatural irritation shall be able to produce such immediate disorder through the whole system, as will not cease but with its total destruction. For when the constitution exerts its full natural force, the least excess must prove pernicious.

These are the chief accidental circumstances that require our attention, before we resolve on the inoculation of the small-pox.

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I shall now endeavour to point out the precautions proper to be used, after the resolution is taken, till the time of the operation, which is properly the preparation for it.

C H A P. VII.

The method of preparation.

WHEN a grown person is determined to submit to the operation, he must resolve to forbear all excesses; he must be regular and moderate in his exercise, and his rest. He must, if he has a good stomach, abate somewhat of his quantity, and also of the strength in the quality of his nourishment, especially if he has led an active life, as nature will be unable to digest the same quantity without her usual assistance. Some kind of exercise is necessary to promote the natural secretions, and to render the body
light

light and easy ; much will dispose the blood to inflame.

Children want fewer restrictions and less preparation ; yet as they are apt to eat voraciously, some attention should be paid to the quantity of nourishment they take, and the stated times of their meals regulated.

The manner of feeding children is so different, that what would be keeping some children low, would be pampering others ; so various are the humours of parents, and so differing their systems of management. Therefore I shall set down particularly what method I have known practised most successfully, and what seems to me to be the most reasonable.

Let them dine on chicken, rabbit, veal, or fish, drest plain every other day ;
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the intermediate days let them have turnips, potatoes, asparagus, or light pudding or tarts. If they are inclinable to be costive, let their supper be roasted apples, or stewed fruit, or gruel with raisins or currants boiled in it. If not, bread and butter, with milk and water for their drink; milk-pottage, or any kind of gruel for their breakfast; the drink for dinner may be small-beer, if used to it, or else barley-water, or water with bread well roasted and soaked in it.

I would not strictly confine grown persons to this diet; some regard must be paid to custom, and their former manner of living. Besides, as the apprehensions of grown reasoning persons are stronger, and their spirits more liable to be depressed, it is necessary in some cases to indulge them with a glass of wine. But

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the deviations from the course before-mentioned must not be very wide.

The opinions relating to the time necessary for preparation are various. If the person to be inoculated is in health, a very little time will be sufficient to fit the habit to receive this distemper; all that is required being to bring it by a gradual transition from a state of activity to a state of rest, in which it is necessary the body should be when it receives the infection; and keeping during that time a proper proportion between the quantity of the humours and the strength of the vessels, taking care that while we are increasing the one we do not diminish the other.

This I judge may be done in three weeks, if the patient is in health; if there is any fault in the constitution to

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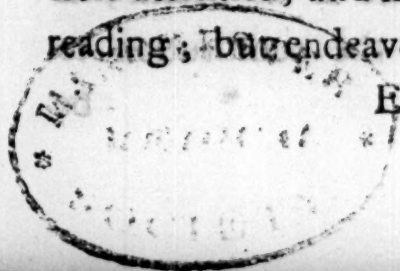
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be amended, it is impossible to determine what time is necessary.

At the end of the second week it will be proper to give a purge, which should be of the gentler kind, viz. a preparation of senna, with manna and some soluble salts, which will unload the bowels without disordering the habit too much. This should be repeated three times, at the distance of every third day; except the discharge weakens the patient; in that case it may be necessary to omit the repetition. To children a proper dose of manna, or syrup of roses, will be sufficient.

During this period the patient should be entirely disengaged from business of all kinds, and avoid all application, and close attention, and should not sit long to reading; but endeavour to pass the time

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agreeably with a few friends. In the day-time, when the weather is serene and mild, he may take the air, and even walk a mile or two according to his strength, taking care to avoid equally all fatigue of body and anxiety of mind, keeping regularly to the usual hours of rest. Nothing of this kind can be practised with children, as these cautions have no relation to their common course of life. It is only necessary to restrain them as much as you can from exerting themselves with too much violence in their play, and to moderate their passions.

There is nothing in this course that is either difficult or troublesome, yet it is such as I have always found sufficient to answer the purpose of preparing the body for inoculation ; much more has been oftentimes prejudicial : I think the whole
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may be included in three words, *viz.* temperance, quiet, and cheerfulness; the natural consequences of which are, that the patient being in a proper state both of body and mind, will pass safely through the distemper, as his habit will be cleared from those obstructions, that so often prove dangerous to those who have neglected the opportunity of being properly prepared for the reception of the infectious venom.

This circumspection must be continued even to the minute of operation. We must always look before us. The particularities of the constitution must all be taken into consideration, relatively with those of the age, season, &c. to which purpose 'tis very necessary to be well informed of every circumstance of the state of the patient's health, not only previous to, but even at the time of ino-

oculation, as for want of a due attention at that time, symptoms may be overlooked, which, though unexpected, will be attended with the worst consequences; for when the lint is laid on the wound, the consequences are irrevocable. I did not attend the following case; yet as it illustrates strongly the necessity of the circumspection and caution above recommended, I shall endeavour to relate it in the plain manner it was communicated to me by the lady herself that was the subject of it.

Lady ——— being appointed to be inoculated on April 28th. the same day perceiv'd some pimples on her face: she had for two days before felt shivering, sickness, pains in her back, head, and legs. The physician and surgeon who attended her, when she acquainted them with these complaints, paid no regard to them, and
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calling it a slight cold, thought proper to proceed to operation. The arms ran but little, notwithstanding the small-pox went on favourably, till the seventh or eighth day, when they began to flag, she being grown faint, and being attacked with a considerable flux of the menses, whose discharge continued some time. Though the arms ran but very little, it is possible the absorbing vessels might have taken in some of the matter communicated to the wound; and the supposition is not improbable: perhaps the adventitious matter might have produced a fresh emotion in the blood, as the disorder appeared at the precise time, the symptoms would have appeared, if the previous disease had not intervened. It was some months after that I saw her; she was then but very lately got out of her house, but had by no means the look of established

health ; nor did she think herself perfectly restored to her former state of constitution.

C H A P. VIII.

Of the operation, and its accidents.

ALL things being thus circumstanced, and the patient thus prepared, the operation may be performed : let a slight incision of about an inch long be made on each arm, through the cuticle, into the skin ; but not through it so as to wound the cellular membrane ; let a thread saturated with the variolous matter be laid along the whole length of the wound, and covered with a pledget of digestive ointment, fastening it on with an adhesive plaster, and binding it on with a thin linen roller ; let this dressing continue on two days : on taking it off the third day, the wound will appear
slightly

slightly inflamed ; and in two or three days after, the edges of the wound will look whitish, the certain sign the inoculation has taken place : from the time of performing the operation to the seventh day, the patient discovers no alteration ; but about that time, or soon after, begins to be sensible of chilliness, with slight shiverings, pains in the back and limbs, weight and pain in the head, with sickness, and a disposition to vomit : young children grow drowsy and heavy ; the mouth, especially about the lips, is seized with frequent convulsive motions, which sometimes spread through the whole habit, and produce those universal convulsions called fits : on being kept in bed some time, and supplied with warm liquids, these symptoms abate, and the whole body gradually becomes disposed to sweats, which on the second day from the first attack of the distemper, often

throw out an eruption resembling flea-bites, which are sometimes so thick as to put on the appearance of the scarlet-fever; but if the patient is kept quiet, and supplied with soft liquids, moderately warm, a profuse sweat succeeding carries off the eruption; and about the fourth day, all the other symptoms decreasing, the small-pox appear in small red spots, which by the beginning of the fifth, rise apparently above the skin: by this time the head-ach, vomiting, sickness, and all convulsive motions ceasing, declare nature discharged of her load, and the eruption complete. From this time the pustules rise daily higher above the skin, the red circumference of the basis decreasing, the pimples gradually changing from red to a whitish-yellow hue; at last, on the seventh day from the eruption, they become pustules, charged with matter on the face; and by the ninth day

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admit the same alteration upon the limbs, from which time all outward marks of inflammation ceasing intirely, the skin of the pustules shrivels, the matter contained in it thickening into a scab, declares the distemper totally at an end, and the patient out of danger.

This is the regular course of the distemper; but besides these symptoms, young children will be attacked in the beginning with a purging, and those more advanced in years with a bleeding at the nose: but neither of these discharges, which are generally salutary, ought rashly to be checked, except the strength of the patient be manifestly impaired by such discharge; convulsions being almost the certain consequence in the first case; as the bilious matter will be thrown back on the membranes, and particularly those of the brain and diaphragm.

phragm. In the other case, if the hæmorrhage be stopped, the blood, which at that time is pushed on impetuously, being denied its proper discharge, will load the arteries of the head, and produce a delirium or phrenitis, except art relieve the oppressed vessels of their over-charge, by other evacuations : but as in this case the attempt is not always successful, it will be better to leave nature to her own management, in attempting to throw off the superfluous load.

C H A P. IX.

Management after inoculation.

AFTER the operation is performed, a stricter care becomes necessary, as the poison now begins to mix with the blood ; we must also begin to remark the habit with greater attention, the patient should now be confined to his apartment,
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and after the third day totally abstain from meat, that the stomach and bowels being charged only with such aliment as being of a loose texture is more easily soluble into chyle, there may be no danger of its overloading, or obstructing the vessels: if the patient is low, or too apprehensive of the approaching distemper, a little wine may be added to his drink; but this allowance to be used with caution. On the seventh day, when the symptoms begin to shew themselves, and the patient is seized with pains, giddiness, and sickness, he should be put to bed; during this period, *viz.* from the time of inoculation to the appearance of the disease, it is necessary that the belly should be kept open, if inclined to be costive, with roasted apples, the juice of currants boiled in a bag, and squeezed into water-gruel, or the fruit boiled in oatmeal or barley-gruel. If these are insufficient,

sufficient, a clyster should be given on the sixth day, or a gentle purge of manna, or syrup of roses, with the infusion of senna added to it, in proportion to the age and strength of the patient.

As the secretions of bile, sweat, and urine, abound with salts, when these secretions are interrupted, the salts are imbibed by the serous part of the blood, and being circulated with it, obstruct the smaller vessels, irritate the nervous fibres of the membranes, and contribute to break the texture of the blood itself; the consideration of which circumstances shews the reasonableness of the diet proposed, *viz.* such as abounds the least with animal, the most active of all salts, while soft diluting liquids promote the action of the kidneys, and at the same time sheath and wash off the irritating particles from the vessels; and also shews the

the necessity of putting the patient to bed, that the external air may not obstruct the perspiration, and prevent the exclusion of the infectious matter; but the most useful and most necessary precaution is to keep the body open, as the salts of the bile are the grossest, and seem to have the greatest connection with the various symptoms of the distemper.

From the opportune use of purging, in the beginning of the disease, I have observed great advantages accrue through the whole progress of it, as the bilious salts being discharged by their proper channel, the humours (not being impregnated with them,) have had less acrimony, and the irritation has of course been diminished: for this reason, even a purging in the beginning of the distemper ought not rashly to be checked, except

cept it apparently exhaust the strength of the patient.

I was one day called on to see a tradesman's child, to whom the mother had given a quack-medicine dignified by the title of the Golden Spirit of Scurvy-Grass, suspecting, as she said, the child had worms, for which she mistook the symptoms of the small-pox. The child had had, as she said, near threescore stools, the last chiefly mucus, or slime, mixt with a little blood. At the time when I saw it, the child was convulsed, though the pulse was very little affected; it likewise had a slight tenesmus: two or three straggling pimples appearing on the face, gave me a suspicion they were the small-pox coming out on the child. I saw nothing immediately necessary but to allay the spasms. I directed a draught with aq: cinn. simp. and a few drops of laudanum

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proportioned to the age of the child. When I visited him the next morning, I perceived a very distinct sort of the small-pox, which went through all its stages perfectly well, without even the secondary fever. The event of this disease suggested to me, that the plentiful discharge by the bowels might prevent that copious afflux of humours to the lymphatics, which afterwards occasions so many disagreeable symptoms. I could not resist the temptation of experimenting so reasonable a deduction, which to my great satisfaction answered in every experiment. I had the pleasure of being informed, that the most sagacious doctor Frewen had pursued the same method of practice with great success at Oxford. This gave me encouragement to propose my sentiments to the publick, when I found them justified by the example of so judicious a practitioner.

If the head is greatly oppressed, and the breathing very difficult; if the pains are acute, or the heat of the body intense; it will be right to take away a proper quantity of blood, even though the pustules are appearing, the eruption of which will be promoted by the evacuation, as (the tension being taken off,) the heart and arteries will be enabled to act with greater vigour.

Children at the approach of the distemper are often seized with fits; though this is a symptom that usually carries more terror than real danger with it, yet if, in the convulsive paroxysm, the spasms are violent, and the fit continues long, it will be necessary to bleed, and even to blister, and give those medicines that are appropriated to this purpose; amongst which the valerian, foot drops, and some chymical preparations of amber, are certainly

tainly the best; but above all it is absolutely necessary to keep the belly open, through the whole time of their continuance, which precaution will oftentimes of itself remove all the ills that attend this symptom.

It has been the usual custom to give a vomit in the beginning of the symptoms of the small-pox, for which the reason is very hard to be assigned. Those reachings to vomit, that denote the approach of the eruption, manifestly depend on the tension and irritation of the membranes of the brain, seldom coming on but when the head is moved (which is then always very giddy). As the action of vomiting doth certainly force the blood violently on those membranes, that are already distended and irritated, there is very little reason to expect that the shock of the vomit will impel the variolous

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matter through their vessels, but much to fear lest it should burst those slender delicate tubes, already too much affected by the disease. I have within this year met with two disagreeable instances, that seem strongly to justify this supposition.

HISTORY I.

A. B. a youth about nineteen years of age, before I was called to him, had been blooded and taken a vomit; when I visited him I found his head confused; but as the eruption was just appearing, I only considered it as one of the usual symptoms of the distemper; but on the fifth day, the eruption being complete, I was surprized to find the delirium increased: I blooded and blistered him; but in spite of these, and other proper evacuations, his delirium continued till his death, which happened on the ninth day, with every external appearance of a good sort of small-pox.

HIS.

HISTORY II.

Y Z. a lad about sixteen, who had
 • been also blooded and vomited;
 when I was called in to take care of him,
 the eruption was very forward, yet his
 head greatly disordered; but luckily,
 after having bled him twice, and kept
 up a successive discharge by blisters on
 different parts, about the thirteenth day
 from the eruption, as near as I could
 calculate, the matter effusing itself plen-
 tifully into the pustules, so as to form
 large bags of matter of them, his de-
 lirium went off, and he escaped the
 danger.

As I never saw the delirium continue
 after the eruption was complete, but in
 those cases where vomiting had been
 previously used; I think there is some
 reason to suspect this operation as ac-
 cessory to the subsequent symptoms. I

can see no more reason for vomiting in the access of the small-pox, than in a fit of the stone, or the case of a fractured skull, which are always attended with a disposition to vomit.

I have seen one case under Inoculation where a delirium attended the disease through its whole progress.

A young gentleman from the West-Indies, about twenty years old, very fond of good eating and drinking, of a full habit and a florid countenance, resolving on being inoculated, submitted to the usual confinement, was blooded, purged, and abstained from meat the week before the operation was performed: the next week was passed with great care and moderation; the symptoms came on at the usual time. On the third day from the seizure, the eruption appeared very
favour.

favourably; but the head was very much confused, the delirium daily increasing, the pustules filling all the time; nor did the suppuration seem to receive the least check from the light-headedness, till the approach of the seventh day. To avoid accidents I applied a blister, and as soon as it began to raise the skin, the pulse requiring it, I ordered him to be bled. From this time he grew calm, his head clear, and he proceeded through the rest of the disease, which terminated on the thirteenth day, without any other accident. The gentleman is now living in the West-Indies; he enjoys perfect health to this day. It may be observed here, that notwithstanding the care taken in the beginning to cool and unload the habit, the pressure on the membranes of the brain, from the general inflammation, was sufficient to produce a delirium, but not enough to burst a vessel: whether

that would have been the case if an emetic had been given, I much doubt.

CHAP. X.

Management after eruption.

AFTER the eruption of the small-pox is complete, the patient feels himself very easy, and continues perfectly well for two or three days; sometimes he feels no further uneasiness through the course of the distemper, especially if the number of the pustules is small, and the inflammation does not run high; but if when the pock begins to suppurate, the inflammation occasions a restlessness, from the smart and soreness of the pustules, the patient will be easily relieved by a quieting medicine; there is rarely any after-fever in this species of the disease.

Although

Although after the appearance of the pustules, every thing appears favourable, and promises a happy period to the distemper; too great security ought not to embolden us to lay aside the proper caution, which is always necessary to the safety of the patient, who should be kept quiet in bed till the crisis, that is, until the matter is intirely separated from the blood, and not only the swelling of the face, but likewise that of the hands and feet, is subsided; except the weather should prove hot, or the quantity of matter so small, as to leave no reason to fear any mischief from its return back on the habit. In either of these cases, the patient may be taken out of bed, and sit up for an hour or two in the middle of the day; always using due circumspection that he does not catch cold, either by an improper and irregular

admission of the air, or by carelessness or neglect in cloathing.

I shall here relate a case which makes to this purpose, as it illustrates what I have asserted throughout of the danger attending the check of perspiration. I did not attend this patient, till after the distemper was declined; therefore only can declare what I had on information, that the beginning and the progress of the disease had been regular, and attended with no ill symptoms. I saw the young lady, the subject of this history, on the ninth or tenth day after the attack of the disease, endeavouring to walk about the room very feebly; so universally relaxed, that she could scarce raise her limbs or support her head, which moved to either side, as her posture inclined her. She continued several months in this enervated condition, till by the use of riding, air, asses

asses milk, and proper internal medicines, she recovered a very moderate state of health. I believe when this young lady underwent the operation, she was about seven years old: some time after, when her strength returned, a fluor albus appeared, which attended her also for a long time; and when that began to disappear, swellings of the oedematous or flatulent kind appeared in the interstices of the muscles all over the body, which at last fixed on the intercostal muscles, always attended with an inflammatory fever, producing a bastard pleurisy accompanied with very acute pains, requiring frequent bleedings; by which, and the free use of blisters, she recovered, after the inflammation was taken off, always speedily regaining her strength in a manner surprizing to those that were acquainted with her natural weaknels, the severe treatment she necessarily underwent, the

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acuteness of her disease, and her natural delicacy of frame. I have reason to be convinced, the accidents attending this disease were intirely owing to the premature taking this young lady out of her bed, before the variolous matter had been sufficiently secreted by the pores of the skin.

Two young ladies were committed to my care, to attend to their management during the time they were under inoculation. The eldest was about seventeen, the youngest fifteen; both of tender habits and scorbutic dispositions, which by the care of a prudent parent, by sensible and judicious attention to their healths, had been so well subdued, that they appeared to be healthy, and very proper subjects, and as such accordingly inoculated. They came to London, to a lodging provided for them, in the month

month of April, which that year was exceeding variable as to the degrees of heat and cold, but uniformly damp, the cold generally producing snow, and the warmth being close, moist, and sultry. The disease proved favourable to both, till on the seventh day, going into the chamber of the eldest, I found all the cloaths except the sheet thrown off the bed, in the absence of the nurse; the young lady pleading in excuse the heat of the weather: I directed what I thought necessary on the occasion, and ordered the nurse to be more upon her guard; but notwithstanding all immediate precaution, her throat soon became much inflamed, and the tonsils swelled, continuing so even after the other symptoms of the distemper were all gone; but at last by proper means were intirely reduced. The other went on very well till after she had taken her first dose of physic, when

when she having been parted from her sister (whom she was very fond of) so long, begged I would permit her to come down into her sister's apartment, which, as I had no reason to refuse, I permitted. It happened the day proved very cold, it snowing at least the greatest part of the afternoon: she very thoughtlessly (a thing not at all uncommon at fifteen) when she got into her sister's room, threw off all the additional cloathing that she had put on when she left her own, and sitting herself down in a window seat, where the wind had free access through the chinks of the sashes (as it generally has in the small lodging houses about London) against all her friends representations persisted in keeping her seat till she left her sister's room. She passed the next night very restless: in the morning her whole nervous system was affected; she was universally enervated and languid;

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her head was giddy, and her heart fluttered; she was dejected, and started at every noise; her nights grew restless; and her hands and legs trembled; so that it was with difficulty she fed and supported herself; but in about three weeks time by rest, diet, medicine, and great care, she recovered her former health; and both the one and the other have since continued in perfect enjoyment of it.

These cases may serve to prove at the same time, the advantage of inoculation, and necessity of caution during the disease, the accidents (brought on by neglect) at first threatening danger (tho' happily soon removed) being plainly deducible from the want of care. The advantage of the operation likewise appeared by the improvement the health of these patients received, they being
before

before delicate, and now not only healthy but robust.

From the time the patient is first confined to his bed, to the end of this period, he should drink barley-water either alone or mixt with milk, milk-pottage and gruel, balm-tea, and small-beer; his diet may be toast sopped in beer, toast and butter with tea, light biscuits, or bread with his gruel; nor ought this method to be changed till (after the conclusion of the distemper), by a gradual transition, the patient may return to his accustomed manner of living.

But, to be more exact, I shall here propose a summary method, which I always have observed myself. The patient should (except the weather be remarkably hot), be kept in bed till the tenth day, during which time the matter

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will be perfectly secreted, not only on the face but on the arms and legs, when he may be safely taken out of bed; the first day he should be only kept up while the bed-cloaths, or strictly speaking the sheets are changed, and the bed beat up and smoothed; the next day the patient may be shifted, and permitted to sit up more or less in proportion to his strength, which should be likewise cautiously attended to, in the future progress of his recovery. It will be better during this time, to abstain from the more solid animal diet, always by a gentle transition advancing to what is more substantial, at first giving a little broth instead of the gruel before used; and if the distemper has been very slight, those sorts of flat fish that are most easily digested, such as flounders, plaice, or small soals, may be permitted, till the bowels are cleared by a dose of physick.

C H A P. XI.

The particular consequences of Inoculation.

INOCULATION, besides the disorder it excites internally by producing the distemper, and its usual train of symptoms, seems to affect the skin in a peculiar manner, and spread its infection through its whole surface: this does not immediately shew itself, but rather appears to affect it in such a manner, as to give it a disposition to inflame on particular occasions. Sometimes in the beginning of the distemper, after the patient is put to bed, and (on drinking warm liquids) begins to sweat, the skin will appear covered with a rash, that in the natural way would threaten a severe sort of small-pox, yet by the continuance of the sweats (which will grow profuse) this

rash

rash will vanish, and immediately the pimples of the distemper itself appear in the most favourable manner.

It is likewise to be observed, that the violent sweats at this time (which in the natural way are prejudicial, by occasioning too great a dissipation) are of service, as they clear the skin of the rash, and bring forward the eruption of the small pox; at the appearance of which they abate, and go off with the other eruptive symptoms.

The following is a rare instance where nature relieved itself from the variolous matter, which protruding itself to the skin, carried off the overcharge by a rash, and a copious evacuation by sweat and urine. This I shall here mention as a most remarkable case; which, though not happening under inoculation, is not

foreign to the present purpose, and proves that nature sometimes, but not commonly, can relieve itself in the manner before described; however, this method of relief is more peculiar to the inoculated than the natural small-pox.

A gentleman's coachman being ordered by his master to send a messenger to Windsor, took a sturdy boy, about twelve or thirteen years old, out of the stable; and though then complaining, damned him for a lazy dog, set him on a coach-horse, gave him his message, and sent him away. The boy set out, and on the same day executed his errand, and returned to London; at the entrance of which his strength failed him, and he dropped from his horse. Some good-natured people brought the boy home to the stable-yard where he lodged: there the humane mistress of the house took
all

all proper care of him, put him to bed, &c. About an hour after the coachman coming in, swore and cursed him for his laziness, declaring that was all that ail'd the young dog; and to compleat his inhumanity, made the poor child get out of bed, and stand in his shirt to pull off his boots. I was sent for very soon after to see the boy, when I found him covered all over with a rash of a scarlet hue : he was quite delirious, with the strongest hardest pulse I ever felt. As there was plainly no time to be lost, I immediately blooded him myself, and emptied his bowels by the quickest method possible; after which he fell into a profuse sweat, which continued thro' the whole night, during which the intense colour of his rash diminished. His sweat still continuing, his delirium was very nearly gone off in the morning, and his fever gradually abated: what was

likewise particularly remarkable, he made during this night and the next morning, a large pot full of a highly red water, charged with a thick brick-coloured foulness, falling gradually to the bottom, and dying it with a very deep red colour. When I saw him the next evening, the small-pox began to appear very distinctly, and every threatening symptom vanished: from this time the distemper proved favourable, and through the rest of its periods was attended with no remarkable bad symptom.

At this time it is proper to keep the chamber, the covering of the bed, and all other external circumstances in a regular and moderate temperament: not so close or hot as to occasion an uneasy sensation from the heat, or so open and cool as to produce a degree of chilliness sufficient to check those sweats that are in this state of the distemper

temper quite necessary. After the eruption it sometimes happens, that the humours passing freely through the skin at the beginning, many of the pustules which nature pushed out in the first effort, shall die away without any appearance of matter in them, and only some few suppurate regularly; yet, except it can be imputed to some sudden accident, there is no occasion to be alarmed at this appearance; or rashly to have recourse to warm medicines to keep them out (as it is called) especially if the patient is easy, and the pulse even and of a proper strength.

If the rash does not appear in the beginning, or is checked by any accident; if proper care is not taken through the course of the disease to keep up an equal perspiration, that disposition of the skin to inflame above-mentioned will shew

itself, and at the latter end of the distemper the bases of the pustules will have an erysipelous appearance, which especially on the legs will sometimes inflame greatly, and degenerate into troublesome sores; sometimes it will appear in a rash all over the skin; and at other times, which is most common, pour its whole venom upon the wound, the cure of which will often prove a tedious disagreeable piece of work to the operator, as well as the patient. These considerations will be sufficient to warn any prudent person against rashly or carelessly exposing the patient to cold, as by it the expulsion of the matter through the skin is prevented; or else being repelled back from the skin on the cellular membrane, will produce boils or inflammations in the glandular and membranous parts of the body, which I shall illustrate more particularly

ticularly in my next section. It is likewise necessary to be cautious how we load the stomach, by indulging the patient too soon with improper nourishment, which from the inability of nature, weakened by the distemper, to digest and assimilate it, will by obstructing the vessels produce slow fevers, and other nervous and chronical disorders.

It does not come within the design of my present treatise, to enter into a particular detail either of these disorders, or the method of curing them. It is sufficient to point out the causes, which will be sufficient to caution every practitioner to endeavour to prevent those accidents which 'tis so difficult to remedy.

As I have had occasion in the course of these papers to mention the danger of repelling the matter back from the surface

of the skin upon the cellular membrane, I shall here add some observations on the nature of that membrane, and such an account of the insensible perspiration of the skin, as will in some measure serve to explain what I have before asserted; in which I shall make use of what has been written on those subjects by two eminent authors, as their words are perfectly clear and pertinent towards illustrating the subject.

According to Hoffman, There is no part of the human body, either solid or fluid, that, preserving its own texture, can contain and conceal a foetid vapid humour so long as the fat; in which the seeds of the small-pox, measles, and purples, will for a long time be concealed and lie hid. To shew further how necessary it is to guard against the intro-pulsion of the humours from the skin,

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the same author observes, When the humour cannot transpire freely through the little tubes and pores of the skin, it settles in the cellular membrane, and becomes acrid by its continuance there; and corroding, pricking, and inflaming the nervous fibres of the skin, it produces various pimples and pustules on its surface. If this be true, as it probably is, this membrane not only lodges those humours that it receives from the blood, which, when put into action, urge their way on to the skin; but it likewise receives into its cells those humours that being obstructed in their passage through the skin, are forced back upon it, whence they communicate their malignant effects to the circulating fluids. These considerations are surely sufficient to convince any unbiassed person of the necessity of keeping up the perspiration, in a cutaneous distemper. As there is no word so generally

nerally misunderstood as perspiration, most people confounding it with sweating; and as a treatise of this kind is intended for general use, for the information of one part of my readers I shall insert the following Aphorisms of Sanctorius, which will fully explain that matter.

APHOR. 5.

Insensible perspiration is either made by the pores of the body, which is all over perspirable and covered with a skin like a net, or it is performed by respiration through the mouth, &c.

APHOR. 21.

The perspiration which is most beneficial, and clears the body most of superfluous matter, is not that which goes off in sweat, but that insensible steam or vapour, which in winter time exhales to
about

about the quantity of fifty ounces in the space of one natural day.

APHOR. 24.

By how much more subtile and with less apparent moistness perspiration is made, it is by so much more healthful.

APHOR. 40.

Whensoever nature is disturbed in the business of perspiration, she soon becomes defective in many more of the animal functions.

From this account of the nature and use of perspiration, it is easy to comprehend the necessity of having a regard to it in the distemper we are now treating of, which has so much need of this secretion through all its stages.

C H A P. XII.

Of the operation.

IN the infancy of the practice, it was the custom to cut the incision through the skin into the cellular membrane, from a prejudice then generally established, that one of the advantages of inoculation was securing a drain for the humours by the wound, which in that case generally continued its discharge for a considerable time after the distemper was over. But it was found that the incision, which was at first only considered as an issue, was too often attended with several very troublesome symptoms, such as inflammation and swelling of the whole arm, which was reduced with much difficulty, the wound continuing a troublesome sore to the surgeon, and a painful one to the patient for a long time, especially in the

legs, where some operators chose to make the incision. Besides, it was no unusual thing at the same time for the person to be seized with other inflammatory disorders, that seemed to point out the cause and seat of the evil.

Early in the year 1732, two young gentlemen and a young lady were inoculated together (they were of a family in which the small pox had been remarkably fatal) all in the prime of life. The operation was performed after the then usual manner, by cutting through both skins into the cellular membrane. As these patients were under my father's care, I cannot be very particular; but as I was then much with them, I remember one of the young gentlemen fell into a diarrhoea, which being aggravated by the absurdity of an overbearing surgeon, who pretended to a particular knowledge of the management

ment of the small-pox under inoculation, prevented the physician's giving a timely check to the flux, which carried the patient off. The other young gentleman passed through the small-pox remarkably well, but in a few days after he got out of bed, was seized with a painful swelling in his scrotum, which gave his physician much trouble to remove: he became afterwards subject to pains in his bowels, and as he advanced in life, had likewise pains resembling the gout, which though they sometimes puffed up his limbs, seldom or never formed regular fits; and though he lived many years after, he rarely enjoyed perfect health. The young lady about the same time after she recovered, was seized with an inflammation in her eyes, which was followed by a weakness which (though she has preserved her eye-sight) has continued to this day, notwithstanding all the assistance the ablest

ablest practitioners have been able to give her.

I have observed besides, many other casualties, to which I can impute the beginning of ill health in many subjects that have come under my cognizance, plainly deducible from this mistaken practice. But it is needless to be particular in mentioning the consequences of a method now universally exploded, the merit of which is owing to the sagacity of Mr. Ranby, to whose judgment and penetration the art of surgery is beholden for other useful and important improvements: he first observed the ill consequences of deep incisions, and perceived how unnecessary they were for the admission of the infection, whose subtilty was sufficient to penetrate thro' the smallest puncture or slightest wound, and exert its effects on the whole mass

of the human fluids: he first instituted the slight scratch through the cuticle, instead of the deep wound before made use of, the advantage of which so soon discovered itself, that the practice became generally adopted, and all those inconveniences that formerly attended the operation, are intirely unknown in the present practice; as the mischiefs that attend the insinuation of the matter into the cellular membrane, are now sufficiently evident to every experienced practitioner.

C H A P. XIII.

Of the accidents and management of the Incision.

THE incision during the first six or seven days makes a very small discharge, and when the symptoms of the small-pox begin to come on, it frequently appears quite dry, the inflammation
about

about the wound continuing just visible. After the eruption, as the pock advances to maturation, the fores seem in some measure to keep the same pace, enlarging by degrees, looking foul, with jagged edges, having a slough in the middle spreading in proportion to the enlargement of the wound; nor is there commonly any considerable suppuration from the fores till after the pock is turned, when the slough begins to digest out, and in about a week, more or less, leaves the fores well digested and clean.

But the fores do not equally enlarge themselves in all subjects; in some the slough, extending itself both in breadth and depth, will form in the middle of the wound, which will effuse an ichorous pus, corroding and inflaming the adjoining parts, and extending the inflammation down to the cubit; in others the wounds

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will be very well conditioned, and the discharge moderate; the accidents of the sores being differently determined by the various circumstances both of management and constitution.

Generally the wounds continue running about a fortnight or three weeks after the turn of the small pox, or even longer, and then by common dressings proper to wounds heal up kindly. Sometimes the wound in one arm will dry up soon, while the other shall continue its discharge for a considerable time.

But when from the sharpness of the humour the arm is much inflamed, it will be necessary to use a poultice of white bread and milk with ointment of elder; this if the habit be not bad (proper regard being had to the diet, &c.) with bleeding and gentle purging repeated according to the strength

strength of the patient, will by degrees dispose the wound to heal, and dispel all its accidents.

I know there are various opinions about the proper time of beginning to give the purging medicines, and the quantity to be given after the small-pox. I will endeavour to deliver my own sentiments as clearly as I can on the subject (not derived from speculation but) deduced, to the best of my ability, from observation and experience, on which I have always endeavoured to found my conclusions. The small-pox is an infectious distemper, communicated both by contact and inspiration: from the time of its insinuation into the habit, nature endeavours to throw off the infectious matter upon the surface; the more subtile parts passing off through the pores, the grosser parts are intangled in the skin,

where they form small phlegmons, which suppurating properly, form a crust on the surface of the skin, which now receiving no further supply from the habit, drying up and scaling off, declare the disease at an end. But as it happens sometimes the lymphatics, being overcharged, empty themselves on the glands, the humours, being too viciid or too copious to pass entirely to the skin, are discharged by these outlets, at this time very necessary to carry off such redundancies. While the suppuration dislodges what has been deposited on the skin, it will also be right to carry off the peccant or superfluous matter by the bowels; yet this should not be attempted too hastily, that is, not until the inflammation of all the pustules is gone off, and until the secretion of the skin be perfected, which will be best known by the intire difficcation of the matter on the limbs and trunk.

Every

Every experienced practitioner, I dare say, knows the mischiefs that arise from the resorption of matter into the blood, in all cases. I know no reason to suppose the variolous pus is more inoffensive than any other species; I am sure I have seen many imposthumations, as well as lingering hectics, brought on by giving purging medicines in this disease too soon, that is, before the suppuration is compleated on the limbs: when that is perfected, the patient, having now no more fever, and beginning to recover strength, will, if he is not overcharged, want but a few doses of purging physic, and be very well able to bear what may be wanted.

In those cases where the flux of humours on the sore is very large, we should not be too hasty in endeavouring to check the discharge; but rather in some cases, and some constitutions, to promote its continu-

ance by putting a pea into the wound, and keeping it open as an issue; but this is to be done only on necessity, as the least of two evils, the repulsion of the humour being always of ill consequence. Drastring or mercurial purges ought not to be used in this case, but upon very mature consideration: it is generally better, always safer, to endeavour to correct the humours and restore the habit, by sweetening and absorbent medicines, decoctions of the woods, and asses milk. These methods will often do the work quicker than the most violent evacuations.

It sometimes happens that after all external appearances of the disease are vanished, a rash shall appear, attended with heat and itching, affecting chiefly the arms, legs, breast, and back, which will be covered with small pimples, that being scratched emit a watery humour,

sharp

sharp enough to fret the skin, and spread a slight inflammation over it; this symptom (where I have seen it) has been probably a consequence of too quick a transition to a stronger diet than was proper. It is necessary to bleed, and give cooling purges in this case, and to correct the acrimony of the humours, and cool the heat, by remedies proper for that purpose: testaceous and nitrous medicines joined, are generally sufficient to answer this end. Asses milk will be a necessary conclusion, as by its cooling and nourishing qualities, it will temperate the heat and sharpness, and at the same time recruit the reduced constitution.

It will not be amiss to mention here, what should have been before observed; for young women that have had the menses, the best time to undergo the operation will be two or three days after

the time of their discharge is over, by which means all the symptoms of the small-pox will be over before their return, which will then be of use in clearing the habit of the remains of the inflammation: I have known it happen sometimes at different periods of the disease, but by proper care without any ill consequence.

C H A P. XIV.

Of the different ways of Inoculation.

BESIDES the present method of making superficial wounds in both arms, beginning below the insertion of the deltoid muscle, and making a slight incision in a straight line downwards; and the deep incisions formerly cut in the arms or legs, the inconveniencies of which I have already mentioned; there
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have been practised several other ways of inserting the matter. Dr. Mead has described and condemned the Chinese method of thrusting it up the nostril, as too violently affecting the head. The people of the Levant use the puncture; some have affected to wound but one arm or leg, and some to make the incision transverse; of late the method of insinuating the matter by friction has been proposed and recommended.

The method of inoculation used by the Circassians, from whom we have derived the practice, is thus described by Mr. de la Motraye, who was in that country in 1711, where he had an opportunity of taking this account on the spot; which tho' not published till the year 1723, is indeed the most ancient description of the operation; and as it is curious, I have thought proper to transcribe it.

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As I found these people still handsomer and handsomer, in proportion as I advanced amongst the mountains, and saw nobody who was scarred with the small-pox, I bethought myself to ask them if they had any secret to preserve themselves from the havock which that distemper makes among so many other nations. They informed me that it was owing in a great measure to their inoculating them; whereupon I desired to be told their manner of doing it, which they explained to me exactly enough for me to comprehend it, without seeing the operation; though by my diligent enquiring in all the villages through which we passed, I found an opportunity of being present when it was put in practice. It was in a village called Deglivad, upon a young girl of between four and five years old: they had, as they said, purged her before-hand, and on my asking with what,

what, I understood it was with the dried fruit and leaves and root of buglois boiled together; at least the leaves which they shewed me, made me judge it to be that plant. The girl was carried to a young boy of three years old who had this distemper naturally, and whose pock began to suppurate, or were ripe, and an old woman performed the operation; for those of this sex who are the most advanced in age, are believed to be also so in wisdom and knowledge, as well as the oldest of the other; and they exercise generally the practice of physic, as these latter do of priesthood. The manner of her inoculating the pock was thus: She took three needles fastened together, and pricked first the pit of the stomach; secondly, directly over the heart; thirdly, the navel; fourthly, the right wrist; and fifthly, the angle of the left foot, till the blood came: at the same time she took some matter

from the pock of the sick person, and applied it to the bleeding parts, which she covered first with angelica leaves dried, and after, with some of the youngest lamb-skins; and having bound them all well on, the mother wrapped her daughter up in one of the skin coverings, which, as I have observed, compose the Circassian beds, and carried her thus packed up in her arms to her own home, where (as they told me) she was to continue to be kept warm, eat only a sort of pap, made of cummin flower, with two thirds water, and one third sheep's milk, without either flesh or fish, and drink a sort of ptisan made with angelica, bugloss roots, and liquorice, which are all very common throughout the country; and they assured me that with this precaution and regimen, the small-pox generally came out very favourably in five or six days, about which I took the old woman's

woman's word, not staying to see the effect of it. They told me also another precaution which they take, and that is, they treat all young folks who are at all indisposed before they have had this distemper, as if it were a symptom or indication of it, as some must naturally have it, before it can be given artificially to others; and to this precaution or regimen they attribute their having such a small number of pocks, and so few marks of them. To this first manner of communicating the small-pox, they have added a second, more general and more easy; that is, after purging the persons to whom they design to give it, they put them naked to bed to one who has them before the pocks are ripe; and they communicate them both these ways (the first of which is the most certain and infallible) to children under seven years of age; and those parents who have handsome daughters,

ters, will sometimes ride for that purpose a day's journey round about to find some young child who has them: nobody could give me information of how ancient standing the practice of this operation had been amongst them."

Men of leisure and curiosity will find matter of employment in considering the advantages and disadvantages of these several practices, and may in time settle all controverted points on this head, and determine whether any good will arrive from adopting a new method of conveying the infectious matter into the blood: therefore until some new one is established by the authority of repeated experiments, it will be safer to go on in the beaten road of practice; especially as the present manner of performing the operation seems to be least liable to accidents or disappointments. I shall just observe, that

that wounding one arm is generally sufficient to propagate the infection; yet as it may by accident happen, that one of the incisions shall not be affected, it is always the better and securer way to open them in both arms.

CH A P. XV.

I Have heard of the Small-pox and measles both coming together; but as I have never seen them appear at one and the same time on the same person, I shall relate the following case.

Master N. being inoculated at his grandmother lady D—'s house, she took the opportunity of having her own servant, a young country lad, inoculated at the same time. Master N. sickened at the usual time, had the distemper favourably, and recovered perfectly. When
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the distemper came on, and appeared on the young gentleman, the same thing was expected on the lad; but though he likewise sickened, he was at the same time attacked with a violent cough, his eyes looked red and watered, and when the eruption on the other subject appeared plain, I saw not the least appearance of the small-pox on this: but in a day or two, the violence of the cough encreasing, and being attended with great difficulty of breathing, and a rash spreading itself over the face and whole body, left me not the least reason to doubt the disease now shewing itself was the measles, and ought to be treated as such. The severity of the peripneumony, and the violence of the cough, calling for the free use of the lancet, he was blooded three times, as his disease required, that is, whenever his cough was violent, or his breathing difficult. As

his inflammation ceased, he took a dose of purging physick ; but the small-pox shewing itself immediately in the most favourable manner, he took no more till that distemper was over: he then took physick as usual, and remained perfectly well from the consequence of both diseases. It is observable in this case, the symptoms that appeared when he first sickened, were only those peculiar to the measles ; but when they declined, the small-pox appeared on the skin without any previous symptom, except we conclude they were involved with the inflammatory ones of the first disorder. He was inoculated February 5th, 1761 ; the measles appeared February 13th following : he was purged for the measles the 23d of February, when the small-pox appeared ; and on the 1st of March he was purged for the small pox.

C H A P. XVI.

Observations where the operation seems to fail.

IT sometimes happens, that the patient does not catch the distemper, though the operation is properly performed, and the matter is good and properly taken, the incisions healing in a few days. When this is the case, the patient is not secure from the danger of contracting the disease afterwards; but if the sores keep open, and the feverish symptoms come on at the usual time, though not a single pustule should appear, I am convinced that the patient is as secure from ever having the small-pox, as if there had been a plentiful eruption; at least there is no instance that has been ever produced, where it has happened; even though the utmost endeavours have been used to procure a second infection, on a supposition that the first had been

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imperfect. To quiet the minds of those who have fallen, or may fall, under the like circumstances, I have added the following remarkable case.

About 3 years ago two children were inoculated together, from the same matter, *viz.* a boy 4 years old, and his sister; the feverish symptoms came on in both of them at the usual time very favourably, attended with those profuse sweats which generally precede the eruption, during which, or rather when the sweats abated, a slight rash appeared upon the boy's skin, which is no uncommon forerunner of the eruption; however, the fever subsiding, the sweat went off, and the rash totally disappeared; nor had we one single pustule to supply its place: the sores on the arms made the same progress as if he had had the eruption, sloughing, and gradually widening,

about the time that we might suppose the distemper would have been at the height; the sores digested and discharged more matter than is usual, and continued the discharge, though lessening gradually for at least six or seven weeks afterwards.

It is to be observed, that the moment the fever left the patient he seemed perfectly well, nor did he ever complain of any thing but his arms; I mean the sores, which were tenderer than usual: it may easily be imagined that the parents of the child were not so well satisfied as if he had had the eruption; it was, therefore, resolved to put him to bed to his sister when the small-pox came to turn with her, which was accordingly done for a whole night, but without any effect.

Two years afterwards another son and daughter of the same family were inoculated,

culated, and the boy abovementioned was brought home from school on purpose to be with his brother and sister, to try once more if he was safe from infection: he was almost constantly in the room with them, and when the distemper came towards the height, was often upon their beds, stroaking their hands and arms, for several days following, but all to no purpose; he has continued perfectly well ever since, and is as fine a boy as any in the kingdom.

I am beholden for this history to a friend whose integrity is a sanction to every thing he says, with all that know him; I have chosen to give it preferably to several of the same kind that have come under my own observation, as the methods taken to procure satisfaction were so remarkable.

I shall mention only one instance of many that have occurred to me in my

own practice, as it is a strong, and ought to be a convincing proof of the moral impossibility of the small-pox twice infecting the same person. W. C. a robust young man in the prime of life, ignorant whether he had had the small-pox or not, desired he might be inoculated with a young gentleman, a friend of his master's, to which request his master consented. The incisions in his arms closed up in a day or two, and he attended the young gentleman aforementioned (who was very full and delirious) through the whole course of the distemper, yet never had the least symptom or appearance that could give any reason to believe, or even suspect he had had the small-pox. Continuing well after the recovery of the person he attended, but not being satisfied within himself, or thinking himself secure, he prevailed with the surgeon to inoculate him again, who with the greatest good nature, willing to make the poor man's

man's mind perfectly easy, performed the operation again; but with no more effect than at first, and he has been perfectly well, though it is now four years since. He has just now attended a young man, a fellow-servant, constantly, during eleven days, under the most violent malignant small-pox with the greatest diligence and affection, without the least injury to himself, though the distemper carried off the person that had it. Whether this man had been infected in his youth, it is impossible to ascertain, though it is reasonable to believe it: thus much is certain, that no attempt to communicate the infection, had any effect on him.

I have now given my reader those observations I have made in several years practice on the subject of inoculation. I have to the best of my power fairly stated the accidents that usually attend the practice; and described the means from
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reason and experience I have found most effectual either in preventing them, or obviating their effects. And I believe most of those inconveniencies that have hitherto attended it, may be either lessened or avoided by the management I have laid down. I have not published these observations merely from the vanity of being an author, but by the encouragement of some friends, both in and out of the medical way, who were pleased to encourage me in communicating them, as believing they might be of public use.

I am convinced that inoculation has a direct tendency to the good of mankind, as the small-pox left to its natural course generally destroys a seventh part of those that are infected by its venom, which a very small part of mankind entirely escapes; whereas by this practice, hardly one in a hundred suffers from its violence. As to the accidents, they are near equal in

both ways, to those that escape the distemper. Those that depend on the inoculation may be lessened ; those in the natural way rarely any human care can prevent.

I cannot conclude my subject without mentioning, as a Briton, my gratitude to His late Majesty, who, besides his constant care exerted for the good of his subjects in their civil and religious rights, as a true father of his people, extended his care in a most unparalleled instance to their health and preservation. How much do we owe to him and his Royal Consort, who by generously submitting their royal offspring to the reasonable, though then unexperienced, events of the operation, opened the way to the safety and happiness of their subjects ? Some have ascribed to princes both in this and a neighbouring kingdom an imaginary merit from a pretended power of healing, founded on superstition. It is one of
our

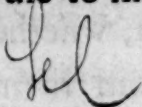
our king's glories (the Almighty second-
ing his endeavour) that by his means
thousands of his subjects live to bless his
name, as owing their present existence
and security to his royal influence and
example.

I have observed, that a refinement
upon simple obvious truths is usually
obstructive to real knowledge; nor can
any thing confirm this observation in a
stronger manner than the subject before
us. It is hardly credible how many different
opinions existed about the manner of
treatment of the several circumstances of
the disease: the most trifling things be-
came serious and weighty to some, whilst
others treated matters of real moment as
if they were of no consequence. As I al-
ways believed the practice of inoculation
of the greatest use to mankind, I thought
it my duty to promote the progress of it,
and to consider in order to remove the
obstructions to its success. Finding by
constant

constant observation that those who are in the most temperate healthy state at the time they submitted to the operation, and who were most carefully treated till the disease attained its perfect crisis, never felt any inconveniencies or bad consequences from it, I laid down these plain propositions, that health was the previous consideration, and strict care during the continuance of the disease, the necessary requisition from which we might reasonably expect success.

On this foundation I have endeavoured to establish a method deduced from them: how I have succeeded, I leave the public to determine. The methods of management I have proposed, I experienced to be right; the facts I have advanced I know to be true; whether the deductions I have made from them are satisfactory, I leave to the judgment of others. My age, my infirmities, and my profession (which leaves me very little time for
other

other pursuits) oblige me to hasten the publication of these sheets (not altogether so correct as I could have wished) which I hope may be of some use to the world. Utility is all I am at; my veracity is all I assert: no desire of reputation from a singularity of opinion, or vanity of displaying superior knowledge, have the least influence in this publication. The observations I have made in many years practice, and whatever experience enables me to deliver with confidence, I have declared with truth and sincerity; perfectly convinced I have not been imposed on myself, and sure I do not design to impose on others; hoping sincerely, that what I publish to the world may be of some use to mankind.



F I N I S.

